Clinical Section

The Prevention of Whooping Cough*

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IT need hardly be said that an efficient prophylactic agent against Whooping Cough would be a most desirable addition to our armamentarium. We have always thought of Smallpox, Diphtheria and Scarlet Fever as serious diseases of childhood and consequently we have made tremendous efforts in trying to stamp out these diseases by efficient prophylaxis. Whooping Cough, Measles and Chickenpox have somehow never been in the same class; there are still many who believe that all children must have them and the sooner they get them and get it over with, the better.

When we consider, however, that there are 200,000 reported cases of Whooping Cough in the United States each year with 5,200 deaths—one death in every 39 cases—we must realize that we are dealing with a serious disease. Dr. Sterling in a recent U.S. Public Health Service report says: "The deaths among little children—those under *five* years of age—from Whooping Cough, about 6,000, exceed those from Diphtheria, Measles, Scarlet Fever or Tuberculosis. The number is greater than that of Measles and Scarlet Fever combined and over 50% greater than that of Tuberculosis." Unlike the other infectious diseases 75% of the fatalities occur before the end of the second year of life. Fifty-five per cent. of the deaths are in infants of less than one year of age. One out of every four infants who contract Whooping Cough will die of it; one out of 10 in the second year—after the fourth year the mortality is about nil.

These figures are presented merely to show the nature of the problem. Not only is a good prophylactic agent required but if available it must be used as early as possible.

Ordinary prophylactic measures are almost useless in the disease. The disease is highly infectious in the early catarrhal stage before the whoop develops and yet it is precisely at this stage that the diagnosis is difficult to make. As a result, dozens of children and infants may be exposed to a single case before a diagnosis is made. Even when the diagnosis is made, the emphasis of fresh air in treatment has resulted in the unnecessary exposure of many children at lake resorts to children with Whooping Cough who are taken to the beach because "the fresh air is good for them."

If we are to have any control over Whooping Cough, then, we must have some potent and effective agent which, administered in adequate dosage, will either protect against the disease or modify it when it occurs. Various preparations have been used in the past—as far back as 1916 Danish investigators, notably Madsen, used a serum containing two million organisms per c.c. They administered 2.2 c.c.s and felt that although it failed to prevent the disease "fewer Whooping Cough deaths occurred when the inoculations were completed before the disease broke out."

In 1931, the Council on Pharmacy and Chemistry of the American Medical Association voted to omit pertussis bacillus vaccines from the list of new and non-official remedies in view of the fact that in fifteen years of extensive use no acceptable confirmatory evidence for their value had become available.

Since 1931 a great deal of work has been done with pertussis bacillus vaccines and some of the reasons for earlier failures have become evident. In the main the reasons for poor results in the past are directly due to two factors:

1. The use of improperly prepared vaccines of doubtful immunizing potency.
2. Inadequate dosage.

Methods of Preparing Pertussis Vaccine.

Repeated observations by reliable workers have established apparently beyond doubt that the pertussis bacillus is the organism commonly associated with Whooping Cough. The method employed in the preparation of a potent vaccine is, however, a matter of extreme importance. Leslie and Gardner in 1931 (J. Hyg. 31:423) pointed out that although the pertussis bacillus is a uniform species without fixed varieties or types, when it is subcultured on artificial media it tends to go through a series of regressive changes. They described four phases in this change, phases I. and II. being identified with the smooth and III. and IV. with the rough colony variation. With the variation toward the rough colony type the organism tends to lose its capsule, is altered antigenically, becomes less toxic for guinea pigs, rabbits and mice and is no longer infective for the chimpanzee.

It became clear, therefore, that the primary requisite for an effective pertussis vaccine was the use of freshly isolated and Phase one strains.

Sauer advanced the idea that increased dosage was necessary and instead of the 4 or 5,000,000 organisms used by Madsen, he advocated using 80,000,000 and more recently 100,000,000. Originally given in three bilateral injections weekly, the vaccine is now given in double strength, in one arm at a time and at 3 week intervals. A total of 5 c.c.s is administered, each c.c. containing 20,000,000 organisms. 1 c.c. is given at the first visit and 2 c.c.s at each of the remaining two visits.

Local and general reactions are to be expected, but in only one case did I find it advisable to discontinue the administration of the vaccine before it was completed. In this case, a baby of 8 months of age, the baby developed a temperature of 104° after the first dose, and a convulsion with the second. The mother and I both agreed that we preferred Whooping Cough itself to the vaccine in that particular case. Where the reactions are severe smaller doses may be given over a longer period of time or the intermediate strength with 15,000,000 organisms per c.c. may be substituted and a total of 8 c.c.s given.

The vaccine should be given as soon after 6 months of age as possible since it is in the baby that Whooping Cough is most to be feared. The vaccine should be carefully refrigerated in order to preserve its potency.

What are the results obtained from the use of this vaccine? Unbiased judgment is important. There are so many variables to be considered that a personal opinion can have little scientific value. Good results obtained in private practice may be due to the effectiveness of the vaccine, but may also be due to lack of exposure.

It is important to know whether you are dealing with an institutional group, a large family or a single child family. It is important to know whether the child lives in a single house or in an apartment block. As McIntosh has said "If we are to draw rigid conclusions we must have rigidly planned experiments. Studies made by individuals without strict controls, without accurate information about contacts and careful computation of results should be taken with a grain of salt." The natural transmission of Whooping Cough is notoriously capricious so that adequate studies of prophylaxis are out of the range of the individual and must be carried out by large clinics, public health departments or other large groups where the control is adequate.

It might be of some help to us at the outset to determine what proportion of children are apt to develop Whooping Cough after contact with the disease:

Biedert	1885	91%—village population Germany.
Madsen	1906	98%—Faro Islands.
Kendrick		75%—Grand Rapids—under age 3.

From the mass of statistical papers in the literature, I have selected two interesting and, I think, important and informative studies.

1. Siegel and Goldberger

64 children under age 6

Pertussis Vaccine had been given to 17 children in a preventorium two years before an outbreak of pertussis occurred. The results of the outbreak are tabulated as follows:

	No.	Typical	Mild or Doubtful	No. W.C.
(a)	No history of W.C. Vaccine given.	17	5 (27%)	4	8
(b)	No history of W.C. No vaccine given.	19	10 (53%)	1	8
(c)	Definite history of W.C.	16	5 (31%)		
(d)	Doubtful history. No vaccine.	12	5 (45%)		

Two important observations can be made from the above chart.

1. Pertussis vaccine apparently conferred as much as immunity as a previous attack of Whooping Cough.

2. The teaching that one attack of Whooping Cough confers complete immunity is erroneous. 31% of the children in this group who had previously had Whooping Cough contracted the disease again. This interesting fact has been borne out on several occasions in other carefully conducted experiments.

2. Summet County (Akron) Experiment

This is one of the most interesting and valuable of all clinical experiments conducted on the prevention of Whooping Cough.

There were 100 children in this Home. Fifty children who had never had Whooping Cough were given 8 c.c.s of Pertussis Vaccine in April, 1934. There were 50 controls.

In April, 1936, Whooping Cough broke out in a department in which 29 children resided. All the children played, ate and slept together. Conditions were ideal for exposure and the likelihood of infection much greater than in private practice in the average home. Nurses were in continuous attendance. They were given cards for each child without being told which child had had pertussis vaccine and which had not. The number and severity of the paroxysms were charted on the spot. Codeine was the only medication used.

There were 29 children in this department divided into three groups.

1. 12 children—No history of W.C. No vaccine.
2. 9 children—Pertussis vaccine given.
3. 8 children—Previous history of Whooping Cough.

Analyzing the cards turned in by the nurses at the end of eight weeks, the following observations can be made.

1. The children in group 1 all had typical, severe Whooping Cough with spasm, vomiting and whoop.

2. The children in group 2 and 3 reacted almost identically. Half of them developed no cough of any kind. The rest developed mild cough with an occasional paroxysm and ran a very mild course. Under conditions of private practice the diagnosis

of Whooping Cough could hardly have been made on some of these children.

Here again we note that a previous attack of Whooping Cough does not confer complete immunity in the event of intimate exposure to the disease. The disease is modified as it is in the vaccine treated cases.

Silverthorne and Fraser (1938) reported in a study in progress at the Hospital for Sick Children in Toronto. Children have been inoculated at the hospitals county branch over a period of 5 years; other children at the county branch who for some reason were not suitable for vaccination have been selected and followed as controls. Among 161 controls there have been 27 direct contacts and 23 of these developed Whooping Cough. In the vaccinated group of 747 children there have been 41 instances of direct contact and two cases of Whooping Cough have developed.

In only one large controlled study, namely, the Doull experiment in Cleveland, were the results unsatisfactory. One wonders whether the vaccine and here differed in some way from the vaccines and in other experiments. I have omitted Sauer's own figures for obvious reasons. My own results in private practice have been very satisfactory.

Conclusions

What, then, are we to conclude with regard to the use of serum for the prophylaxis against Whooping Cough? In 1938, Dr. Faber was Chairman at a panel conference on Whooping Cough at San Francisco. In summarizing the views expressed at the meeting he concluded:

1. Immunity conferred by serum is not and cannot be expected to be absolute.
2. Contrary to earlier belief, the immunity derived from a previous attack of the disease itself is also far from absolute.
3. In both cases it tends to break down when exposure is intimate or prolonged.
4. Under less drastic conditions of exposure both the artificially and the naturally produced immunity appear to afford protection in a large proportion of cases. The protection from both sources appears to be approximately equal.
5. There is evidence of partial protection when the immunized individual does acquire the disease as shown by briefer and milder symptoms.

It is only necessary to add that while the success of immunization against Whooping Cough is not quite as good as that of Diphtheria and Smallpox immunizate, the results recorded in private practice and from well-conducted experiments by reliable clinics justify the inclusion of Pertussis Vaccine in any immunization program for infants and young children.

*An address delivered to the Manitoba Medical Association, September 21st, 1940.

Tuberculosis Complicated With Pregnancy

Note—This is a report made to the Medical Committee of the Sanatorium Board on the subject of Tuberculosis and Pregnancy. The committee was composed of Dr. E. L. Ross, Superintendent of the Sanatorium Board of Manitoba; Dr. A. C. Sinclair, Superintendent of St. Boniface Sanatorium, and Dr. D. L. Scott, Assistant Superintendent of the Sanatorium Board; with Dr. Ross Mitchell, Professor of Obstetrics, Faculty of Medicine, University of Manitoba, as Chairman.

THE greatest incidence of tuberculosis in women is in the third decade and this is likewise the most favourable period of childbearing. Bacon estimates that more than one per cent. of all pregnant women have tuberculosis active enough and advanced enough for definite diagnosis. Maeder and Myers urge that the examination of the woman who presents herself for obstetric care should include the tuberculin test, and that positive reactors should be examined with the greatest of care for the presence of clinical tuberculosis.

The problem may be considered under the following headings:

(1) The effect of pregnancy on a woman suffering with tuberculosis.

(2) The effect of lactation on a tuberculous woman.

(3) Whether termination of pregnancy in a woman suffering with tuberculosis is indicated.

If so, at what time should this be done.

(4) Should economic or social factors enter into this problem.

As regards the first of these—the effect of pregnancy on tuberculosis—it may be stated that medical opinion up to a few years ago was in general that pregnancy exercised a deleterious effect. This opinion has been revised in the light of careful statistical studies of a large series of cases. Forsner found that 86 per cent. of first-stage cases, 75 per cent. of second-stage cases and even 38 per cent. of third-stage cases were either improved or stationary during one year's observation subsequent to confinement. Barnes and Barnes found that 79 per cent. of the incipient cases and 65 per cent. of the moderately advanced cases and 28 per cent. of the far-advanced cases improved during pregnancy. Of the children born to tuberculous mothers about 80 per cent. are alive and well at birth.

Dr. E. L. Ross, Dr. A. C. Sinclair and Dr. D. L. Scott have kindly given their views on the ques-

tions submitted and their views are as follows:

DR. ROSS—

In a general way I believe the impression that most medical men have had handed down to them is that the combination of pregnancy and tuberculosis is very dangerous. This was true when most cases of tuberculosis being considered were in an advanced stage. With women generally presenting themselves earlier for pre-natal care and general medical examination and with more adequate and efficient facilities available for the earlier diagnosis of tuberculosis, the obstetrician and general practitioner surely must be finding tuberculosis in a less advanced stage. Another reason for a less alarming attitude is that collapse therapy in controlling the extension and activity of tuberculous lesions is applied more aggressively at the present time. If an active minimal or moderately advanced pulmonary lesion can be controlled by pneumothorax and Sanatorium treatment I would not advise termination of the pregnancy. If the tuberculosis is advanced, especially is bilateral, is active and if the outlook is none too favourable, considering the tuberculosis in itself, I think the pregnancy should be terminated early. The early course of the pregnancy should have some bearing on the question as certainly intractable vomiting would tend to aggravate a tuberculous lesion.

It is surprising how well tuberculous women will carry on throughout their pregnancy, often even with advanced disease whether accounted for by some metabolic change or the degree of compression and snugness of the lungs caused by the elevation of the diaphragms, or something else, I do not know. The period of greater danger seems to be following the confinement—possibly the release of pressure, lactation, loss of rest with the care of the infant, etc. It is not uncommon to elicit a history of the patient being well and without chest symptoms until after her last baby was born.

Termination of Pregnancy

The patient with quiescent or apparently arrested tuberculosis should rarely have her pregnancy terminated on account of tuberculosis. She should, however, observe special care and precautions. Those who do badly usually haven't had their tuberculosis discovered until some months following confinement. In Fort Qu'Appelle Sanatorium they have had for a number of years provision for confining tuberculous women and Dr. Ferguson is quite impressed with the favorable relationship of pregnancy and tuberculosis if the latter is properly treated and the baby removed from the mother immediately after birth.

Social and Economic Factors

Your fourth question regarding social and economic factors might be the most contentious. Of course, the discussion here is limited to tuberculosis and the factors in question have often an important relationship, indeed frequently present a problem more difficult to solve than that of the patient herself. I could not define anything in this respect because each case is a separate problem in itself, but I do think in deciding for or against termination of the pregnancy social and economic factors should be taken into consideration *when the patient has tuberculosis.*

DR. SINCLAIR—

In my opinion, a normal pregnancy exerts little or no effect on the course of tuberculosis; by that, I mean to say that I do not believe there is anything mysterious about a woman's response to tuberculosis when she is pregnant. I do believe that the indications for cure taking are enhanced during pregnancy from the viewpoint of expenditure of energy.

Effect of Pregnancy on Tuberculosis

In reply to your questions:

(1) The general effect of pregnancy occurring in a patient with tuberculosis.

(*a*) Acute pneumonic tuberculosis. Here the disease is so acute that spontaneous abortion is apt to occur (no personal experience), or the case may terminate fatally before the child is viable.

(*b*) Active pulmonary or extra pulmonary tuberculosis, such as is usually seen in association with pregnancy. I believe they should be put to bed and treated the same as if there were no pregnancy, utilizing surgery later, if necessary.

(*c*) Quiescent and arrested cases of tuberculosis, to be protected from physical strain during the pregnancy, but especially for six months post partum, with delivery in an institution. A chest specialist usually should be consulted and a short period (two or more weeks) of observation be advised.

(2) Have you encountered cases in which you felt that termination of pregnancy was indicated for medical reasons?

No. Although my experience in this regard is not extensive. I have only observed about twenty-five deliveries—they did reasonably well with their tuberculosis.

(3) How far should social and economic factors enter into the question of termination pregnancy?

Never, because I believe that if the tuberculosis needs treating, treatment should be started immediately; a delay of a few days should not be allowed. If the disease does not need treating, the pregnancy then simply becomes another pregnancy.

DR. SCOTT—

There does not seem to be any uniformity of opinion concerning the general effect of pregnancy on tuberculosis. In a vague way we all seem to feel that the effect is liable to be bad. When one gets down to think about it, it is difficult to put one's finger on any special case. It is my opinion that pregnancy in the majority of cases has no general effect except in acutely advancing cases

which have little hope of recovery anyway. In these cases the pregnancy seems to hurry the termination of the disease. This is probably rare, because it must be unusual for patients as sick as this to become pregnant.

The ordinary cases of moderately advanced or far advanced tuberculosis that became pregnant can be offered Sanatorium treatment with as much hope of success as any other patient. There possibly are a few cases that cannot be given proper treatment because of the pregnancy. Here the question of termination a pregnancy may be considered. I speak of cases that are prone to extend without the help of surgical collapse and who cannot have pneumothorax. These are rare.

Termination of Pregnancy

We frequently advise against pregnancy, whereas we would not necessarily advise terminating a pregnancy in the same patient if pregnancy happened to be present.

I cannot recall advising termination of pregnancy for purely medical reasons. Our present standards of Sanatorium treatment probably are responsible for this. My own impression is that we first treat the tuberculosis in the ordinary way and the pregnancy is conducted as a normal procedure. If we could have our way in all cases I believe this would be almost standard procedure.

I feel that in most cases where termination is considered that social and economic factors loom fairly largely and are considered to be such that continuation of pregnancy would definitely endanger the mother's life. It is often easier to terminate the pregnancy than to remove the social and economic difficulties.

These are simply generalities for no hard and fast rules can be laid down, as each patient presents a different problem, both clinically and socially.

Lactation and Tuberculosis

It is generally agreed that lactation is harmful to the tuberculous mother because of the drain of certain substances, especially calcium, from her system, and dangerous to the child because of proximity, inviting spread of the disease through contact. A tuberculous mother, therefore, should not nurse her baby. Every care should be taken to prevent spread of the disease through contact. Where mother and child must be under the same roof, some degree of protection to the child may be afforded by inoculation with B.C.G. vaccine.

The views of Dr. Ross, Dr. Sinclair and Dr. Scott on termination of pregnancy have already been given. In the event of a tuberculous woman becoming pregnant the best available medical and obstetrical opinion should be sought, and a decision to terminate pregnancy should be reached only after consultation and agreement of the consultants. It must be remembered that termination of pregnancy may be a formidable undertaking, and in certain circumstances, fraught with more danger than continuance of the pregnancy. If termination of the pregnancy is indicated, the operation should be carried out before the end of the tenth week of pregnancy when it can generally be done at one session.

In the period from January 1, 1936, to May 31, 1940, twelve therapeutic abortions have been performed in the Winnipeg General Hospital, nine on account of pulmonary tuberculosis, two for renal tuberculosis, and one for tuberculosis colitis. From 1935 to 1939 inclusive, four therapeutic abortions were performed on three women in Grace Hospital. In three cases the indication was for active pulmonary tuberculosis, in the fourth, for tuberculosis developing in the remaining kidney after a nephrectomy 13 years earlier. As the operation is forbidden in Roman Catholic hospitals, this total of 16 cases of therapeutic abortion is probably close to the total number performed with tuberculosis as the indication in Greater Winnipeg within the past five years.

The proximity and the close and happy relationship between the Winnipeg General Hospital and the Central Tuberculosis Clinic permit tuberculous mothers in the Clinic to be confined in the Hospital and returned to the Clinic within two weeks as a rule. Where similar conditions do not obtain, it would be well to have provision made in Sanatoria for the delivery of tuberculous pregnant women. The same arguments apply here as for the wisdom of surgical operations being performed in the sanatorium instead of transferring the patient to another hospital.

Conclusions

It appears that that very pessimistic attitude regarding the effect of pregnancy on tuberculosis which formerly prevailed is no longer justified. Tuberculous women who become pregnant should have the benefit of sanatorium care, including surgery when necessary. Contraceptive measures may be advised for the tuberculous woman, but if pregnancy occurs, the necessity for termination will only rarely be encountered.

A Winnipeg doctor recently received this letter from the far north:—

Dear Doctor:

Johnny has a bad cold he has had four colds one after the other and I'm getting worried could you please send some thing. And he had a bad fall about three weeks ago fell on his back of the table on to the steps, and his little thing has been sore ever since it is very red and sore at the end, I put oil on it and powder and don't seem to help any. Do you think the cold would effect them there, and some times it bleeds. Please answer at once.

Yours truly.

Personal Notes and Social News

Conducted by Gerda Fremming, M.D.

Dr. R. B. Anderson, of Angusville, Man., has been appointed coroner for the Province of Manitoba. The appointment was announced in the *Manitoba Gazette*.

♡ ♡ ♡

Dr. John M. McEachern attended a post-graduate course given for Fellows of the American College of Physicians, February 10th to 22nd, at Rochester, Minn.

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Surg. Lieut. Robert S. Swan, R.C.N., has been transferred to the Royal Navy. Before proceeding overseas he spent his leave with his parents, Dr. and Mrs. R. R. Swan, Grosvenor avenue, Winnipeg.

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Dr. H. M. Malcolmson, who had been doing post-graduate work in London, England, is now attached to the staff of the Dept. of Health and Public Welfare of Manitoba.

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Dr. H. S. Atkinhead, formerly of Portage la Prairie, Man., has taken up residence at 278 Yale avenue, Winnipeg.

♡ ♡ ♡

Dr. James Angus Porter has left for Sherridon, Man., to assist Dr. W. J. Bennett, who has taken charge during a three months' absence of Dr. A. E. McGregor.

♡ ♡ ♡

Dr. and Mrs. Norman C. Jackson, of Goderich, Ont., are receiving congratulations on the birth of a daughter, born February 10th, at the Alexandria Marine and General Hospital.

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Dr. and Mrs. W. A. Bigelow, of Brandon, Man., have returned home after a visit with friends in Winnipeg.

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Dr. G. Normandeau, of Lorette, Man., was the recipient of many good wishes and congratulations when a group of friends gathered at his home February 15th on the occasion of his birthday.

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Dr. and Mrs. P. H. T. Thorlakson have returned from Eastern Canada, where they were guests for several days at the Seigniory club in Quebec.

♡ ♡ ♡

Dr. and Mrs. Kenneth Lemon, recently of Corner Brook, Newfoundland, are holidaying in Winnipeg before returning to the East.

Dr. and Mrs. D. S. McEwan, Oakwood avenue, are receiving congratulations on the birth of a son (James Sanger) at St. Boniface Hospital, February 19th.

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Mrs. J. A. C. Swan and little daughter, of Bissett, Man., are visiting relatives in Winnipeg. Dr. Swan spent a few days here, then returned.

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Dr. and Mrs. Carl H. Heuchert, of Calgary, Alta., have announced the arrival of a baby boy (Edward Graham) at the Holy Cross Hospital on February 19th.

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Dr. W. A. Howden, of Neepawa, Man., discontinued his practice on February 15th for the duration and has joined up with the R.C.A.M.C.

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Dr. and Mrs. F. L. Jamieson, of Carman, Man., celebrated their 26th wedding anniversary February 10th.

♡ ♡ ♡

Dr. and Mrs. Gordon Fahrni left for Pacific coast points on a holiday tour of several weeks.

♡ ♡ ♡

Dr. L. R. Rabson has joined the R.C.A.M.C. stationed at Meys, Ont.

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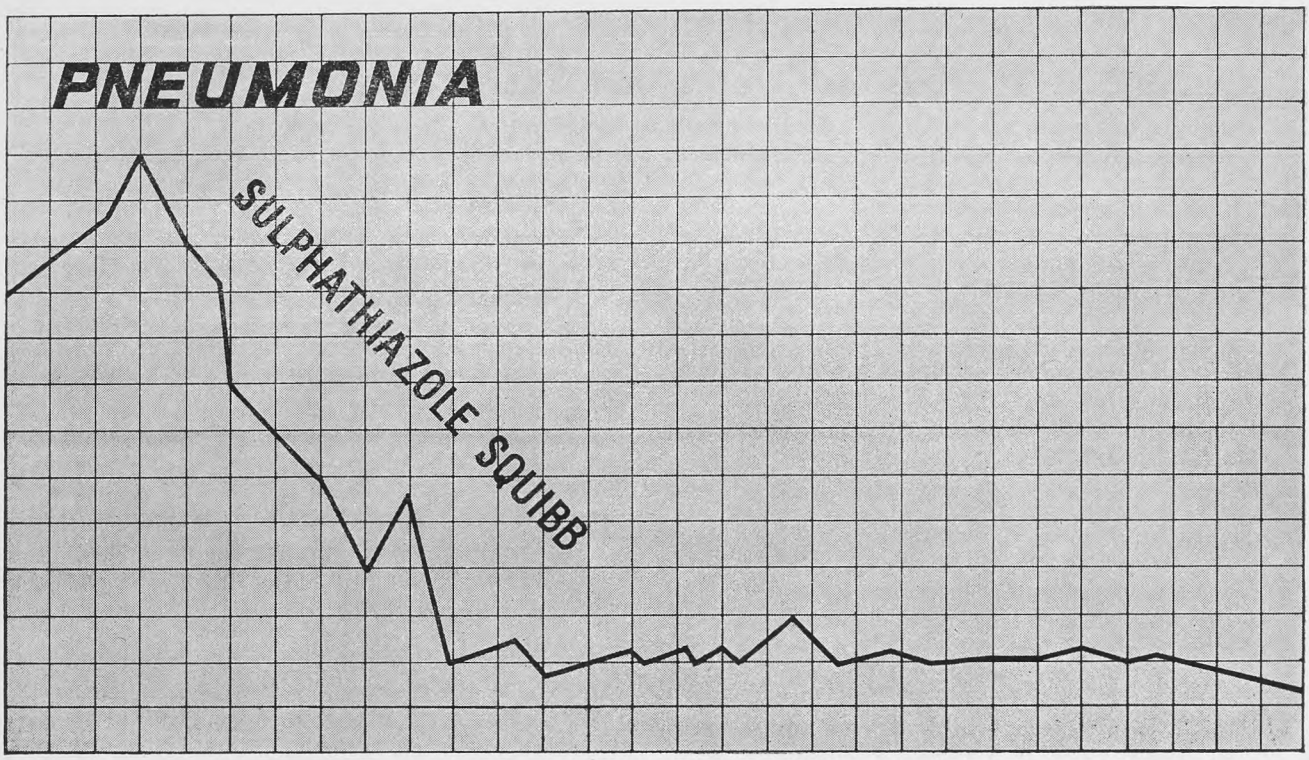
Dr. William Dingle was married November 15th in Aberdeen, Scotland, to Dorothy Mabel Watt, of Aberdeen. They will reside at Shoreham-by-the-Sea, Sussex, Eng.

♡ ♡ ♡

Dr. T. W. Shaw, of Russell, Man., is tops at bridge according to recent press notices. He and his partner, Mr. D. R. McDougald, won the Girls' Hospital Aid Bridge cup. As a suggestion, doctor, what about sending along some good tips to the bridge-minded members of the Medical Arts Club. They, no doubt, would appreciate learning How to win a Silver CUP instead of the common variety of Nickel-Ante POT.

♡ ♡ ♡

The *Review* is always glad to receive items of a personal or social nature for this page; however, as the *Review* goes to press a week in advance of publication date, contributions must be in by the 20th of the month preceding date of issue.



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The Manitoba Medical Review

ESTABLISHED 1921

WINNIPEG, MARCH, 1941

Published Monthly by the
MANITOBA MEDICAL ASSOCIATION
Canadian Medical Association, Manitoba Division

Editorial Office
102 MEDICAL ARTS BUILDING, WINNIPEG

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Annual Subscription - $2.00

Editorial or other opinion expressed in this Review is not necessarily sanctioned by the Manitoba Medical Association

Medical Services and the War

For some years there has been an increasing shortage of medical men in Canada. The additional demands made by the war may produce a grave situation.

It is obvious that the requirements of the fighting forces must be completely satisfied. This will produce depletion of civil medical services, especially the hospitals and medical schools. The community at large must also be prepared to take a loss and carry on with fewer medical men. But in order that medical services shall be conserved and equitably distributed there should be some method of control. Up to now the disposal of medical men has been haphazard. There has been no co-ordination by any responsible body. Each individual has directed his course as dictated by his personal feelings. This uncontrolled method will inevitably prove to be wasteful. Men who are employed in highly specialized and indispensable civil posts will, if left to their own devices, often accept minor positions in the services. This amounts to thoughtless profligacy in the disposal of a national asset.

Since we are not conscripted, there is no individual or organization who can interfere with the action of any medical man. Patriotism and popular opinion impel him towards the services, even if he is leaving a sphere that is essential from the national point of view. No one is likely to blame him, indeed, he is placed above reproach. There are few who appreciate that some can serve the country best by remaining at drab and inglorious jobs.

The medical schools are likely to suffer most, and indeed some may soon be crippled. This would be a tragedy to our war effort and would soon lead to a dangerous shortage in all medical services and would be a threat to national health in the army and out of it. Though all official governmental statements protest that the schools must remain intact, this gives no actual protection. The special interests of the services are advanced in various ways and also popular opinion has a large effect; any effort on the part of the schools to retain key men is likely to be generally regarded as subversive to getting on with the war.

What is the solution? Obviously, some authority must be brought into play which is above and independent of the services, the schools, the hospitals, health departments and other organizations that are interested. Only such an organization could have a completely dispassionate point of view. It should not be parochial or provincial, but national in its scope. It could examine the position in a national organization of each medical unit, take evidence from all of them and set up an establishment for each; it should discover where medical personnel is being wasted and where it is becoming dangerously depleted, and after doing all this it could set up an establishment for each institution concerned. It could not, without invoking conscription, have any power of coercion, but it could with the backing of the government and the profession influence medical men to do the work for which they are most suited and which will be most productive.

The essential industries are being protected, but the most essential profession has been left wide open to complete disorganization. Something should be done soon.

The War

The following items arising in recent meetings of the Canadian Medical Advisory Committee are published for the information of the members of the Association:

Foreign Exchange Control Board

By invitation, the Committee conferred with the Foreign Exchange Control Board, at which conference the Committee stated that the medical profession of Canada is qualified to provide adequate medical care for its people, thus making it unnecessary for Canadians to proceed outside of Canada for treatment. Your Committee was asked to provide a letter to be sent to every medical prac-

titioner in Canada, setting forth the position which has been taken. This has been done.

The attention of the Committee was directed to a form of medical certificate issued by the Foreign Exchange Control Board, applicable to Canadian citizens who desire to go to the United States either for medical treatment or for reasons of health. In studying the form, the Committee felt that many of the questions requiring answers by the examining doctor might be deleted or separated to a second form, and so recommended. The form is being restudied by the Board.

Co-operation With the Air Force

The Committee interviewed the Honourable Mr. Power, Minister of Defence for Air, who accepted our offer of co-operation and subsequently, Group Captain Ryan, Senior Medical Officer in the Service, advised the respective P.M.O's in Canada to co-operate fully with the Advisory Committee of the C.M.A. in respect to the selection of medical personnel for the Air Force.

Co-operation With the Navy

The Committee interviewed the Honourable Angus MacDonald, Minister of National Defence for Navy, offering the full co-operation of the Association in the selection of medical officers as required. Mr. MacDonald assured the committee that in the further selection of medical officers for the Navy, this Association will be consulted in matters which would properly come under our review.

It may be regarded as a matter of gratification that the Association has now formally and officially been recognized by the three Departments of National Defence, to act in an advisory capacity coming within our scope and functions.

Enlisting of Interns

It is the Committee's understanding that the various services look favourably upon a recent medical graduate completing a year of junior internship before enlistment. Accordingly, enlistment of junior interns in the services will not be encouraged. There always remains, however, the matter of choice on the part of the individual, and the Committee is not in a position to guarantee that enlistment by junior interns will not take place.

Recruiting of Interns and Medical Students for Military Training

The Committee was assured by Major General LaFleche, Associate Deputy Minister of the Department of National War Services, that every consideration would be given interns and medical students in the selection of a time for their military training which would interfere as little as possible with their hospital and university obligations. As far as possible, the period of one year's internship will not be disturbed so long as the prospective trainee can take the training within twelve months of the date of proclamation calling out his age group. Notification to this effect has been sent to hospitals and medical schools throughout Canada.

The following additional information was given to the Committee by Major General LaFleche:

(1) *Categorization of prospective trainees* by original medical examiners was reasonably satisfactory but could be improved. The attention of the profession is redirected to the instructions sent to them. In this connection, Major General LaFleche provided the Committee with a letter to be published in our Journal and in Provincial Bulletins, the publication of which was approved by the Committee.

(2) *Statistics re. Rejections* due to physical unfitness are not yet ready for release but it may be stated that the percentage is lower than might have been anticipated. When the break-down of statistics is available for publication, full particulars will be supplied the Committee.

(3) *Medical Advisers* have been selected and appointed by the Department of National War Services in the various Military Districts, part of whose duties will be to examine all medical certificates of trainees, with particular reference to rejections. An agreement was entered into between your committee and Major General LaFleche by which the C.M.A. co-operating through its Divisions and the respective Colleges of Physicians and Surgeons would undertake to nominate *Medical Boards* (three members to a Board—a physician, a surgeon and an Eye, Ear, Nose and Throat specialist) for the purpose of re-examining recruits who were rejected at the first medical examination. On the nomination of the C.M.A. the Boards will be appointed by the Minister, in the areas and to the number required, as set forth by the Minister. Each member of a Board will be paid $10 a day or $5 for part of a day, together with travelling expenses where such are necessary when the Board is asked to proceed from its base. It is suggested that these Boards might be recruited from senior members of the profession who are less likely to be called upon for active military service due to age or some physical disability.

Journals to First Canadian Division Medical Society in England

The members of the first Canadian Division Medical Society in England will be glad to receive current Medical Journals and Year Books. If any of our members can spare copies of these publications, they will be performing a real piece of service by mailing them to the First Canadian Division Medical Society, Canadian Army Overseas.

Military and Civil Medical Needs

It is recommended to all the Divisions that in the matter of enlistment of medical personnel for war services, a careful watch be kept to provide a balance between military and civilian needs as related to medical practitioners.

Journals to Military Hospitals in Canada

It has been decided that the Canadian Medical Association *Journal* will be sent, with the compliments of the Association, to the Military Hospitals in Canada of 250 beds and over, the list of such to be provided by the D.G.M.S.

It has been suggested that Medical Societies and members of the Association who are in possession of *Journals* which they do not require for permanent keep, might forward them to hospital units and medical personnel in military service, where they will be very much appreciated.

Industrial Medicine

Some time ago, the Committee had under consideration a proposal for the establishment of a Committee on Industrial Medicine, and the General Secretary was instructed to secure more detailed information on the proposal. The following suggestions were submitted:

1. That the attention of the Dominion Government, perhaps through the Minister of Munitions and Supply, be drawn to the contribution to the war effort which can be made by the medical profession through the practice of preventive medicine in war industry. This involved the employment by industry of physicians mainly on a retainer basis for work within the factory.

2. That an alternative might take the form of representation to Provincial Governments to pass regulations requiring employment by employers in war industry, of physicians and nurses necessary for the maintenance of health. Such a measure is in effect in Great Britain. Expand the post-graduate training facilities of the Association to include industrial medicine, using short intensive courses in industrial centres to prepare physicians to meet the demand.

3. That a Committee on Industrial Medicine be appointed to consider and eventually to define the objectives and scope of industrial medicine; to consider the qualifications and training for industrial physicians and industrial nurses and to make a survey of present personnel and training facilities.

It was the feeling of the committee that this matter was of sufficient importance to be studied by a Committee set up for the purpose; and it was agreed that Dr. J. G. Cunningham, of Toronto, and Dr. Vance Ward, of Montreal, be appointed a Committee with power to add, to study the question of Industrial Medicine and report back to the Executive Committee.

Central Medical War Committee of the B.M.A.

The Committee had before it a letter from the Central Medical War Committee of Great Britain requesting that 100 medical officers be recruited in Canada by the C.M.A. for the R.A.M.C. The military authorities at Ottawa were conversant with the request.

In order that the committee might consider this request thoroughly, it had available a list (in the various age groups) of unmarried men who had already signified their willingness to proceed overseas; a list of those who had already joined one of the services; and an indication from the three military services as to the number of medical men who might be required during the course of the next twelve months. It was the unanimous opinion of the committee that every endeavour should be made to secure for the R.A.M.C. at least 100 men as had been requested. The following procedure was agreed upon:

That the Divisions be acquainted with the request from the Central Medical War Committee of Great Britain by sending them a copy of the letter together with information re. pay and allowances.

That there be sent to each Division information already available as to enlistments within the Division of unmarried men thirty years of age and under; that the Divisions be asked to check the enlistments against their records, noting the men not over thirty years of age, unmarried, who have volunteered to serve in any capacity overseas; and that inquiry be made of these men to ascertain if they would be willing to serve in the R.A.M.C.

If it is ascertained in such inquiry that a man has married since completing his registration card. this information should be noted in the Divisional Records and communicated to the General Secretary.

It is hoped that it will not be necessary to disturb interns serving their first year in hospital, nor that local medical services will be disrupted unduly.

That the Divisions be asked to take immediate action to ascertain the number of men not over 30 years of age and unmarried, who are licensed to practise and who, in the opinion of the Division, are eligible to be recommended to the Canadian Medical Association for appointment in the R.A.M.C. according to the requirements herein specified.

All nominations from a Division are to be submitted to the General Secretary of the C.M.A. who will arrange through the D.G.M.S. to have the candidates medically examined and documented to ascertain their fitness for service.

To secure at least 100 officers for the R.A.M.C. it seems wise to the Committee to ask for upwards of 125 nominations.

The General Secretary was authorized to carry out the arrangements discussed and agreed upon, as outlined herein.

March 10th, 11th and 12th have been set as the dates for a Sectional Meeting of the American College of Surgeons in which the states of Minnesota, North and South Dakota, Iowa, Nebraska, Montana, Kansas and Wisconsin, and the province of Manitoba will participate. Headquarters will be at the Nicollet Hotel, in Minneapolis.

Department of Health and Public Welfare

The Common Cold

**Prepared by the Committee in Charge of the Co-ordinated Health and Medical Program, Minnesota.*

Causes are both direct and contributory and include a filterable virus, various types of bacteria and chilling.

1. **Virus Colds.** Symptoms are stuffiness, sneezing, sore throat, headache, watery nasal discharge but no fever. Duration—four to seven days unless followed by a secondary bacterial infection which may last two to three weeks.

Note: Influenza is a separate disease process caused by a specific filterable virus. Initial symptoms in about 50 per cent. of patients are essentially the same as in the common cold.

2. **Bacterial Colds.** Start usually with a severe sore throat followed by inflammation of the nasal mucosa. Caused by various types of identifiable bacteria such as streptococci, many of which are present in the nose and throat without causing symptoms until some mechanical irritation or a virus cold or chilling (in susceptible people) prepares the way.

3. **Vasomotor Colds.** Caused by a vasomotor disturbance due to chilling effect on the peripheral circulation. This chilling reduces the temperature of the nasal mucosa and brings about, in susceptible people, hyperemia which is sometimes followed by a secondary infection.

4. **Physical Factors.** Anything that irritates the mucous membrane, including dust, tobacco smoke, etc., produces cold symptoms that are of short duration unless they pave the way by injury to membranes for secondary infection.

5. **Fatigue,** constipation, over-eating, malnutrition, nervousness seem to be related to some extent to colds. It is logical to assume that poor physical condition predisposes to colds.

6. **Allergic Colds.** Symptoms the same as of the virus cold but caused by hypersensitivity of patient to many different substances, including plant pollens.

Prevention

1. **Avoidance of Exposure.** Isolation of patients with acute colds is desirable and would reduce their spread. The potential victim may reduce exposure by simple hygienic measures, such as thorough washing of hands before eating and after contact with articles subject to contamination; by keeping hands from the nose and mouth and by avoidance of direct exposure to persons with colds, especially during the first two or three days when virus colds are infectious.

2. **Use of Vitamins.** In spite of great current interest in vitamin research, no studies have been reported which could serve as a basis for concluding that vitamin supplements to the ordinary diet are effective in the prevention of colds.

(1)* Dosage and Conclusions of a study on the Effects of Large Doses of Vitamins A, B complex, C and D, on the Incidence of Respiratory Infections in a Group of Rheumatic Children, by Ann G. Kuttner, Irvington House, New York, are given below.

The following daily vitamins supplement was given to half of the subjects in a resident institution for rheumatic children.

Vitamin A	15,000	U.S.P. units
Vitamin D	1,870	U.S.P. units: cold liver oil
Vitamin C	2,000	International units
Vitamin B_1	1,000	International units
B_2	480	Bourquin-Sherman units
B_6	40	"Rat Day" units

Filtrate (Factor -s-)-approximately 40 Growth units (Rat or Chick).

Nicotinic Acid or derivatives (pellagra curative) equivalent to 50 grams of whole liver.

Conclusions

1. No evidence was obtained to suggest that the addition of large doses of vitamins, A, B complex, C and D to an ordinary well-balanced diet reduces the incidence of upper respiratory infections.

2. Three children who had received the additional vitamins for a considerable period of time developed rheumatic symptoms following an attack of streptococcus pharyngitis.

3. Children on the regular diet without additional vitamins and those on the regular diet with additional vitamins gained weight at approximately the same rate during the 5-month period.

(2)* J. B. Sherman, reporting in the British Medical Journal, October 29, 1918, found that a daily supplement of 6,000 units of Vitamin A and 1,000 units of Vitamin D administered to 330 employees in an industrial plant had no effect on the number of colds nor the loss of time on account of colds among the employees.

3. **Use of Vaccines.** An earlier series of controlled studies among University of Minnesota students on the value of several vaccines produced no evidence that vaccines reduce the frequency or the complications of colds. Oral vaccines, as well as hypodermically administered vaccines, in which the organisms were destroyed mechanically instead of by heat, were used.

(3)* These studies were later supplemented by controlled studies with the traditional type of heat-killed bacterial vaccines in which 92 students received a sterile physiological solution of sodium chloride under the impression that they too were receiving vaccine. The experimental group reported an average of 4.7 colds per person the previous year while they had only 2.1 colds per person in the course of the study. However, the control group, which also reported 4.9 colds per person the previous year, had only 1.9 colds per person during the course of the study. This study produced no evidence that heat-killed vaccines are of value in the prevention of colds among a group of cold susceptible students at the University of Minnesota.

(4)* On the other hand, C. I. Stafford of Miami University, Ohio, reporting on the use of oral vaccine among students, concluded that oral vaccine had no effect on mild colds among the group studies but that it did materially reduce the frequency of severe colds. His criterion as to a severe cold was "a cold lasting more than one day, accompanied by fever, aching or confinement to bed." The students' own report in regard to severity was accepted. Temperatures were not taken. On this score conclusions are open to criticism. Certain pharmaceutical companies interested in the sale of oral vaccines are naturally exploiting the results of this study.

(2)* Sherman, whose vitamin study is quoted above, also made controlled studies of the effect of vaccines, including oral vaccines, on his employees, with the following results:

Type of Treatment	No. Sub-jects	Average Colds Per Person	Average Duration of Colds	Working Days Lost Per Cold Per Person	
Entoral Vaccine	283	1.50	6.9 days	.79	1.19
Controls	593	1.48	6.7 days	.72	1.06

Obviously the above results show no evidence of value for oral vaccines in preventing either the frequency or severity of colds.

4. **Personal Conditioning.** Spiesman of the University of Illinois and his associates have published some further papers in support of their earlier contentions that frequency of colds—obviously of the vasomotor type—in cold-susceptible individuals, can be reduced by conditioning of the vasomotor system by means of daily cold baths and by the reduction of carbohydrates and increase of fruits and vegetables in the diet.

It is conceivable that the cold baths, especially, might make one less susceptible to disturbances of the vasomotor system through slight chilling. As yet, however, there has been no confirmation of this work by others.

5. **Ventilation.** Over-heating is clearly related, though only moderately so, to prevalence of colds.

6. **Humidity** is not important except as adequate moisture contributes to comfort at low temperature levels. Temperatures of 66 to 68 are comfortable if humidity is 40 to 50 per cent.

7. **Outdoor Exercise.** Johns Hopkins studies showed that outdoor exercise had no influence on frequency of colds.

8. **Sleeping on Outdoor Porches** with windows wide open did not prevent colds in the same studies but produced a larger percentage of colds with coughs. Some evidence exists to prove that people who sleep in extremely cold rooms or porches have more colds.

9. **Nose and Throat Operations,** properly performed, clearly decrease susceptibility to infections of the nose and throat in cases of enlarged adenoids, nasal obstruction or diseased tonsils. Indiscriminate operating does more harm than good.

10. **Nasal Hygiene.** There is no evidence that any spray, drops or gargles are of any value in cold prevention.

11. **Diet.** No special diet, neither the high nor low protein diet, or alkalization are of any established value in cold prevention.

Treatment

The object of treatment is to minimize physiological disturbances, decrease severity of symptoms and, as a result, the probability of secondary infections and complications. It should be directed towards control of the characteristic watery discharge and to reduction of congestion and swelling of nasal mucous membranes which tends to lower resistance to infection by any of the germs that happen to be present in the nose and throat.

1. **Strict Bed Rest** is good advice. Value lies in protecting others, in increasing general resistance and in keeping the body warm. The advice unfortunately is rarely followed and apparently is not practical for majority of patients with colds and no fever; it should be insisted upon in case of fever.

2. **Most effective** abortive treatment discovered after extensive studies at the University of Minnesota of all medicaments used in cold treatments is "Copavin," a preparation consisting of codeine sulphate, ¼ grain, and papaverine hydrochloride, ¼ grain. The usual dosage of this preparation is one tablet after each meal and two tablets at bed time, although larger initial dosages may be desirable if symptoms are severe. (5)* Favorable results with this preparation have been reported by Russell Cecil of New York, (6)* and by Hutter of Vienna (7)*.

(8)* Baker and Cowan, according to a recent report, gave each of 224 University of Minnesota students 10 "Copavin" tablets with instructions to take one after each meal and two at bed time at the first sign of a cold. If the cold persisted after 24 hours they were to report to the Health Service. Milk Sugar tablets were given to 276 students as a control group. The students who received the codeine papaverine preparation averaged 42 per cent. fewer colds than the control group. During the winter of the study 32 per cent. of the students who took the codeine papaverine preparation had no colds, of 24 hour or more duration, as compared with 10 per cent. of the control group.

To test the value of the amphetamine in aborting colds, 279 students were given "benzedrine inhalers" with instructions to begin use of them immediately at the start of a cold, with two inspirations for each nostril, once an hour, for as long as symptoms persisted. A control group of 276 students received inhalers of the same appearance and odor with the same instructions for use. Those who used the "benzedrine inhaler" developed an average of 32 per cent. fewer colds of 24 hour duration than the control group. Twenty-eight per cent. of these who used the "benzedrine inhaler" had no colds of 24 hour duration as compared with ten per cent. of the control group.

Complications such as bronchitis, sinusitis, and otitis media were fewer among those who used "Copavin" than of those who used either the "Benzedrine inhaler" or the control groups. Data concerning complications are too small, however to be entirely conclusive.

These studies seem to indicate that both "Copavin" and the "benzedrine inhaler" are of value in the abortive treatment of the common cold and that, of the two, "Copavin" has the greater value.

3. **Sweating** out a cold by exercise may relieve nasal congestion but relief is usually temporary.

4. **Hot Baths** or steam baths increase flow of blood and also reduce nasal congestion. If followed by bed rest with sufficient covers to prolong heat they may give relief of more than temporary character.

5. **Physiotherapy** has about the same value as exercise and baths.

6. **Catharsis.** There is no logical basis for the use of cathartics though most patent remedies include them. Recent studies show cathartics have no effect either on temperatures or duration of colds.

7. **Antiseptic Gargles** are of no value.

8. **Counter Irritation** by hot or cold compresses, mustard plaster or medicated ointments applied to the nose or throat have never been found to be of value.

9. **Increased Liquids** were long considered valuable but there is no scientific evidence of benefit except in case of fever.

10. **Medicated Oils** in the nose during the acute stage tended to aggravate the irritation of the mucous membrane.

11. **Ephedrine and Atropine** preparations gave relief of very short duration.

It should be remembered that many people recover from colds spontaneously within a few days. Many others experience long periods of freedom from colds and willingly credit the last remedy taken for this freedom. The fact makes it possible to sell almost any preparation for colds provided it is supported by an energetic advertising campaign.

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(3)* Cold Vaccines . . . by H. S. Diehl, A. B. Baker, D. W. Cowan, Journal of the American Medical Association, Vol. 115, No. 8, pg. 593, August 24, 1940.

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(7)* Eine Einfache Intern-Medikamentose Behandlung Des Skuten Schnupfens . . . by Prof. F. Hutter, Wien klin, Wchnschr, Vol. 50, pg. 376, 1937.

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COMMUNICABLE DISEASE REPORT
December 31, 1940 - January 28, 1941

Measles: Total 782—Winnipeg 127, Minnedosa 72, Portage City 65, Brandon 58, Woodworth 42, Louise 35, Lakeview 32, Sifton 22, Wallace 19, North Norfolk 15, Portage Rural 12, Daly 11, Miniota 11, Cypress South 9, Pembina 9, St. Boniface 9, Ethelbert 8, Roblin Rural 8, Arthur 7, Lac du Bonnet 7, Silver Creek 7, Whithead 7, Albert 6, Neepawa 6, Shoal Lake Village 5, Strathclair 5, Virden 5, Blanshard 4, Cameron 4, Harrison 4, Minto 4, Brenda 3, Gilbert Plains Rural 3, Hanover 3, Kildonan East 3, Kildonan West 3, Rivers 3, St. James 3, Transcona 3, Elton 2, Fort Garry 2, Hamiota Village 2, Hamiota Rural 2, Manitou Village 2, Rockwood 2, Ste. Rose Rural 2, Archie 1, Boissevain 1, Brooklands 1, Coldwell 1, Dauphin Town 1, Deloraine 1, Edward 1, Flin Flon 1, Killarney 1, McCreary 1, Pilot Mound 1, Pipestone 1, Ritchot 1, St. Clements 1, Selkirk 1, Turtle Mountain 1, Unorganized 1, Winnipegosis 1 (Late Reported: Daly 19, Brandon 13, Louise 12, Winnipegosis 10, Winchester 6, Woodworth 5, Roblin Rural 4, Edward 3, Neepawa 3, Gilbert Plains Village 2, Sifton 2, The Pas 2, Wallace 2, Arthur 1, Cypress South 1, Gilbert Plains Rural 1, North Norfolk 1, Rockwood 1, St. Boniface 1, Ste. Rose Rural 1).

German Measles: Total 300—Brandon 146, Melita 33, Arthur 15, Portage City 14, Ste. Rose Rural 12, Deloraine 11, Kildonan East 11, North Norfolk 9, Winchester 8, St. James 4, McCreary 3, Brenda 2, Ethelbert 2, St. Boniface 2, Kildonan West 1, Portage Rural 1, Sifton 1, Transcona 1, Tuxedo 1, Whitehead 1 (Late Reported: Edward 8, Ste. Rose Rural 8, Brandon 5, Ethelbert 1).

Chickenpox: Total 176—Winnipeg 113, Unorganized 19, Woodlands 7, St. Boniface 6, Portage City 5, Kildonan East 4, Minnedosa 3, Transcona 3, Lawrence 2, Morris Rural 2, St. James 2, Swan River Rural 1, Kildonan West 1, Melita 1, Minitonas 1, Rockwood 1 (Late Reported: Unorganized 3, Portage City 1, St. Boniface 1).

Whooping Cough: Total 84—Winnipeg 37, Hamiota Village 12, St. Boniface 4, Archie 2, Franklin 2, Montcalm 2, St. Clements 2, Brandon 1, Hamiota Rural 1, Miniota 1, Rhineland 1, Unorganized 1 (Late Reported: Unorganized 6, Rhineland 5, Brandon 3, St. Clements 2, Rosedale 1, Grey 1).

Influenza: Total 83—Brandon 53, Winnipeg 5, Portage City 3, Rhineland 3, Carberry 2, Dauphin Town 2, Portage Rural 2, Ellice 1, Hamiota Village 1, Ste. Rose Rural 1 (Late Reported: Brandon 4, St. James 1, Glenwood 1, The Pas 1, Miniota 1, North Norfolk 1, Rhineland 1).

Mumps: Total 83—Winnipeg 66, St. Boniface 8, Lawrence 3, Flin Flon 1, Fort Garry 1, Kildonan East 1, MacDonald 1, Portage City 1 (Late Reported: St. Boniface 1).

Scarlet Fever: Total 53—Winnipeg 11, Unorganized 7, Brandon 7, The Pas 4, St. James 3, Portage City 2, Ethelbert 1, Gretna 1, Kildonan West 1, Selkirk 1, Stonewall 1, Transcona 1, Winnipegosis 1 (Late Reported: Unorganized 6, The Pas 2, Dauphin Rural 1, North Norfolk 1, Portage City 1, Winnipegosis 1).

Tuberculosis: Total 28—Winnipeg 15, Strathclair 1, Unorganized 1, Kildonan East 1 (Late Reported: Dufferin 2, Dauphin Rural 1, Oakland 1, Ritchot 1, St. Boniface 1, Stanley 1, Strathcona 1, Victoria 1, Unorganized 1).

Pneumonia Lobar: Total 18—Brandon 2, Ste. Rose Rural 2, Argyle 1, McCreary 1, Rosedale 1, Ste. Rose Village 1, Unorganized 1, Wallace 1 (Late Reported: Bifrost 1, Cartier 1, Portage City 1, Ste. Anne 1, Stanley 1, Westbourne 1, Unorganized 1, Brandon 1).

Diphtheria: Total 17—Winnipeg 10, Tache 2, St. Boniface 2, Carberry 1, Charleswood 1 (Late Reported: The Pas 1).

Erysipelas: Total 12—Winnipeg 2, Brandon 2, Argyle 1, Ethelbert 1, Hanover 1, Hamiota Village 1, Lorne 1, Portage City 1, Ste. Anne 1 (Late Reported: Brandon 1).

Meningococcal Meningitis: Total 6 — Brandon 1, Carman 1, Ste. Anne 1, Tuxedo 1 (Late Reported: Springfield 1, Ochre River 1).

Diphtheria Carriers: Total 6—Tuxedo 3, Winnipeg 3.

Typhoid Fever: Total 3—(Late Reported: Stanley 3).

Encephalitis: Total 1—(Late Reported: Selkirk 1).

Ophthalmia Neonatorum: Total 1—(Late Reported: St. Vital 1).

Tetanus: Total 1—(Late Reported: Harrison 1).

Septic Sore Throat: Total 1—Portage City 1.

Treaty Indians: Total 16—Measles 3, Pneumonia Lobar 3, Septic Sore Throat 1 (Late Reported: Measles 3, Tuberculosis 6).

Venereal Disease: Total 140—Gonorrhoea 98, Syphilis 42.

DEATHS FROM COMMUNICABLE DISEASE
December, 1940

RURAL—Cancer 29, Tuberculosis 14, Influenza 9, Pneumonia Lobar 8, Pneumonia (other forms) 8, Syphilis 4, Measles 2, Whooping Cough 2, Diphtheria 1, Lethargic Encephalitis 1, Puerperal Septicaemia 1, other deaths under one year 26, other deaths over one year 155, Stillbirths 18. Total 278.

URBAN—Cancer 39, Influenza 10, Tuberculosis 10, Pneumonia Lobar 7, Pneumonia (other forms) 8, Syphilis 5, Cerebrospinal Meningitis 3, Puerperal Septicaemia 1, Typhoid Fever 1, Whooping Cough 1, other deaths under one year 16, other deaths over one year 170, Stillbirths 11. Total 282.

INDIAN—Tuberculosis 12, Pneumonia Lobar 1, Pneumonia (other forms) 5, Influenza 1, Typhoid Fever 1, Whooping Cough 1, other deaths under one year 7, other deaths over one year 8. Total 36.

COMMUNICABLE DISEASES REPORTED IN TERRITORY CONTIGUOUS TO MANITOBA

Disease	Manitoba Dec. 31, '40-Jan. 28, '41	Ontario Dec. 29, 40-Jan. 25, '41	Saskatchewan Jan. 1-25, 41	Minnesota Dec. 29, '40-Jan. 25, '41	North Dakota Dec. 29, '40-Jan. 18, '41
Anterior Poliomyelitis		1		3	
Meningococcal Meningitis.	4	68	6	2	1
Chickenpox	171	1,609	78	644	
Diphtheria	16	5	6	4	19
Erysipelas	11	4	2	6	
Influenza	73	1,611	109	965	523
Encephalitis		1		3	
Measles	692	2,328	682	20	40
German Measles	278	2,354	830		
Mumps	82	490	12		
Scarlet Fever	41	630	25	220	18
Septic Sore Throat	1	25			
Smallpox				30	1
Tuberculosis	18	159		134	8
Typhoid & Para-Typhoid..		5	10	6	1
Undulant Fever		2			
Whooping Cough	66	644	22	242	45

Books Wanted for the Troops

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